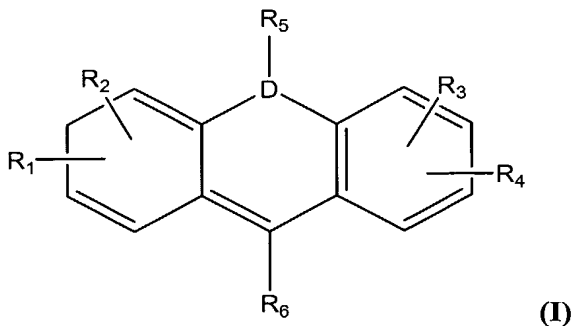


CLAIMS

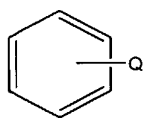
What is claimed is:

1. A small molecule metabolite reporter compound of the following formula:



5 wherein

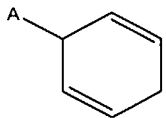
- D is a heteroatom;
- R₁ and R₂ are different and are selected from the group consisting of H, OH, NH₂, NO₂, OCH₃, N(CH₃)₂, A, or, R₁ and R₂, taken together with the ring to which they are attached, form R₇;
- R₃ and R₄ are different and are selected from the group consisting of H, $\text{C}(=\text{O})$, OH, B(OH)₂, M, or R₃ and R₄, taken together with the ring to which they are attached, form R₈;
- R₅ and R₆ are different and are selected from the group consisting of H or



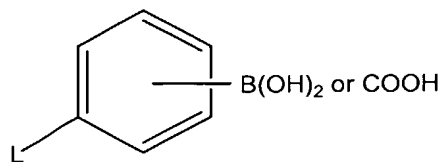
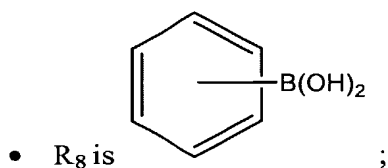
, wherein Q is H, COOH, B(OH)₂, or M;

15

- A is OH, NH₃, $\text{C}(=\text{O})$ or N^+ ; ;



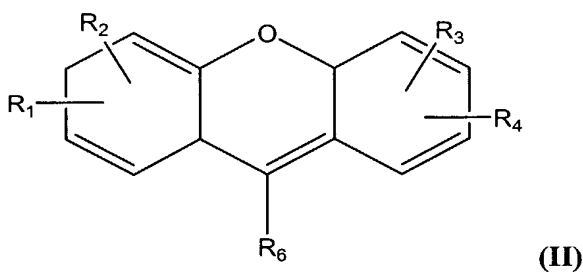
- R₇ is ;



- M is ;
- L , when present, is an amino-containing linking moiety;
- R_1 and R_2 , and R_3 and R_4 , are adjacent to each other on the rings on which they reside; and
- at least one boronic acid moiety is present; and salts thereof.

5

2. The reporter compound of claim 1, wherein D is N or O .
3. A small molecule metabolite reporter compound of the following formula:

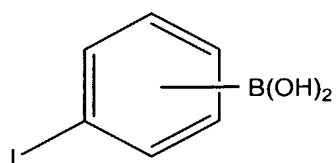
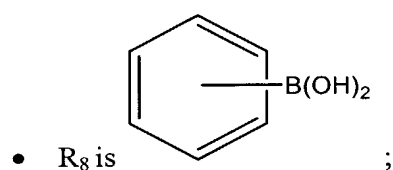
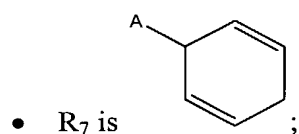
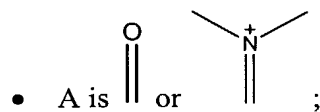
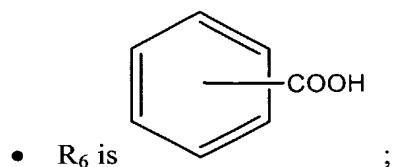


10

wherein

- R_1 and R_2 are different and may be A , or, R_1 and R_2 , taken together with the ring to which they are attached, form R_7 ;
- R_3 and R_4 are different and are selected from the group consisting of H , $\overset{O}{\parallel}$, OH , $B(OH)_2$, M , or R_3 and R_4 , taken together with the ring to which they are attached, form R_8 ;

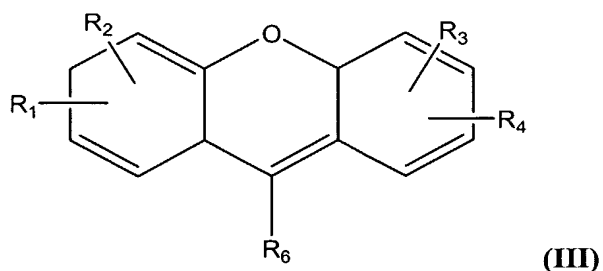
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5

- M is ;
- L, when present, is an amino-containing linking moiety; and
- R_1 and R_2 , and R_3 and R_4 , are adjacent to each other on the rings on which they reside; and salts thereof.

4. A small molecule metabolite reporter compound of the following formula:



10

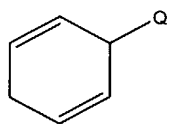
wherein

- R_1 and R_2 are different and are selected from the group consisting of H, OH, NH_2 , NO_2 , OCH_3 , $N(CH_3)_2$, A, or, R_1 and R_2 , taken together with the ring to which they are attached, form R_7 ;

5

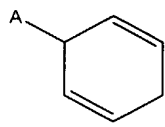
- R_3 and R_4 are different and are selected from the group consisting of H, $\overset{\text{O}}{\parallel}$, OH, M, or R_3 and R_4 , taken together with the ring to which they are attached, form R_8 ;

- R_5 and R_6 are different and are selected from the group consisting of H or



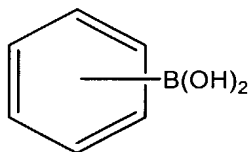
, wherein Q is H or M;

- A is OH, NH_3 , $\overset{\text{O}}{\parallel}$ or $\overset{\text{+}}{\text{N}}(\text{CH}_3)_2$;

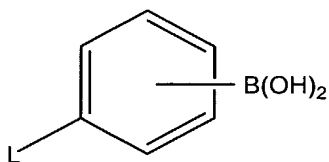


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- R_7 is ;



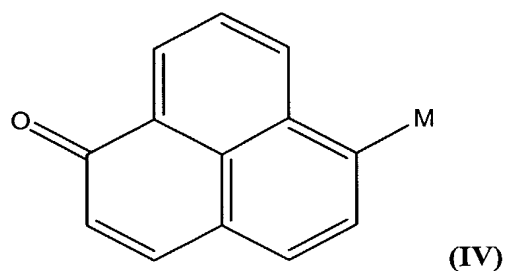
- R_8 is ;



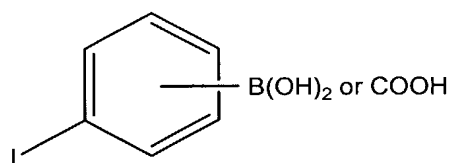
- M is ;
- L, when present, is an amino-containing linking moiety; and
- R_1 and R_2 , and R_3 and R_4 , are adjacent to each other on the rings on which they reside; and salts thereof.

15

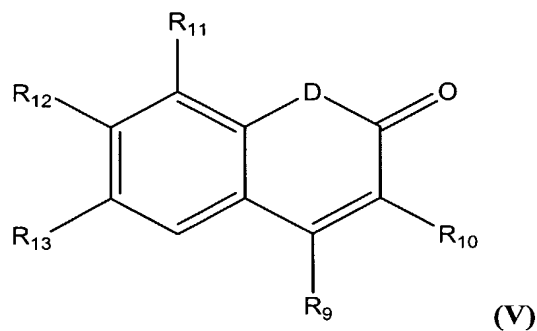
5. A small molecule metabolite reporter compound of the following formula:



wherein

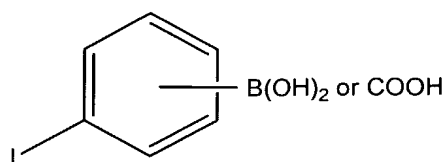


- M is ; and
 - L, when present, is an amino-containing linking moiety; and salts thereof.
6. A small molecule metabolite reporter compound of the following formula:



wherein

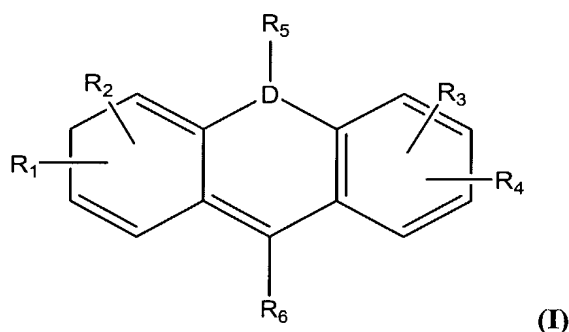
- D is a heteroatom (*e.g.*, O or N);
- R₉ is H, OH, CH₃, CF₃, M, or an amino or substituted amino group;
- R₁₀ is H, CH₃, or M;
- R₁₁, R₁₂, and R₁₃ are individually H, OH, alkoxy, M, or an amino or substituted amino group;
- R₁₄, when present, is H or CH₃;



- M is ; and
- at least one boronic acid moiety is present; and salts thereof.

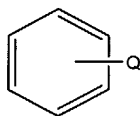
7. A topical sensor composition comprising a compound of any one of claims 1 through 6, and a carrier or binder:

- 5 8. A method of measuring a compound or metabolite thereof, comprising contacting a reporter compound of the following formula:


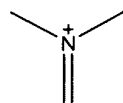


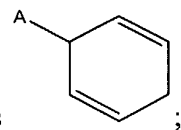
wherein

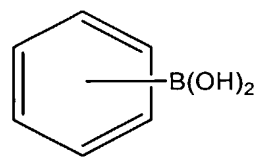
- D is a heteroatom;
- R_1 and R_2 are different and are selected from the group consisting of H , OH , NH_2 , NO_2 , OCH_3 , $N(CH_3)_2$, A , or, R_1 and R_2 , taken together with the ring to which they are attached, form R_7 ;
- R_3 and R_4 are different and are selected from the group consisting of H , $\overset{O}{\parallel}$, OH , $B(OH)_2$, M , or R_3 and R_4 , taken together with the ring to which they are attached, form R_8 ;
- R_5 and R_6 are different and are selected from the group consisting of H or

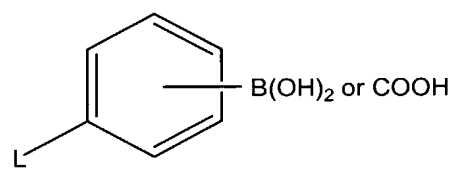


, wherein Q is H , $COOH$, $B(OH)_2$, or M ;

- A is OH, NH₃,  or  ;

- R₇ is  ;

- R₈ is  ;

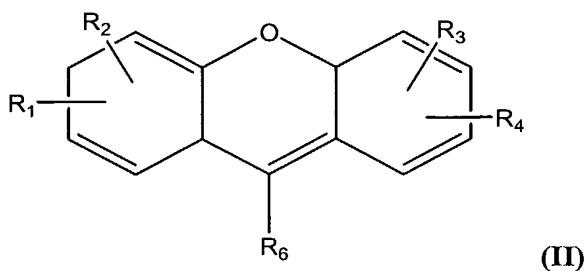
- M is  ;

5

- L, when present, is an amino-containing linking moiety;
- R₁ and R₂, and R₃ and R₄, are adjacent to each other on the rings on which they reside; and
- at least one boronic acid moiety is present; and salts thereof; which reporter compound is sensitive to the presence of said compound or metabolite thereof, with an area of the body where said metabolites may be found, and detecting a photometric change in said reporter compound indicative of said metabolite.

10

9. A method of measuring a compound or metabolite thereof, comprising contacting a reporter compound of the following formula:

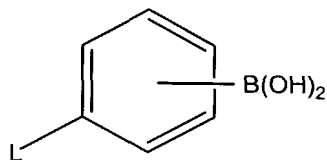
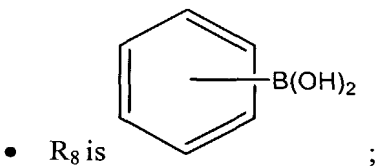
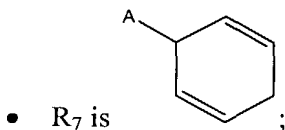
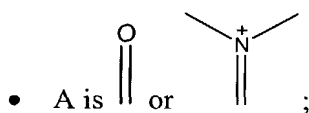
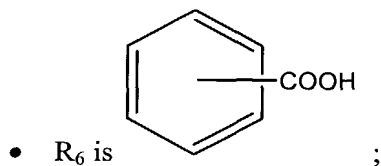


15

wherein

- R_1 and R_2 are different and may be A, or, R_1 and R_2 , taken together with the ring to which they are attached, form R_7 ;
- R_3 and R_4 are different and are selected from the group consisting of H , $\overset{\overset{O}{\parallel}}{C}$, OH , $B(OH)_2$, M, or R_3 and R_4 , taken together with the ring to which they are attached, form R_8 ;

5

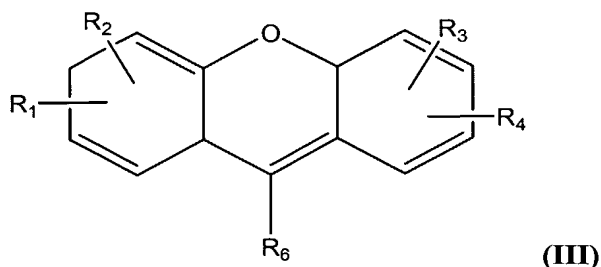


10

- M is ;
- L, when present, is an amino-containing linking moiety; and
- R_1 and R_2 , and R_3 and R_4 , are adjacent to each other on the rings on which they reside; and salts thereof; which reporter compound is sensitive to the presence of said compound or metabolite thereof, with an area of the body where said metabolites may be found, and detecting a photometric change in said reporter compound indicative of said metabolite.

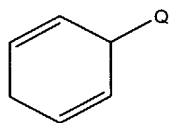
15

10. A method of measuring a compound or metabolite thereof, comprising contacting a reporter compound of the following formula:



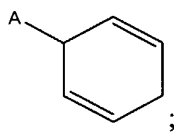
wherein

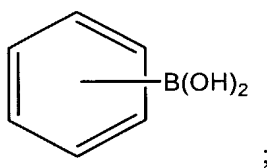
- 5
- R_1 and R_2 are different and are selected from the group consisting of H, OH, NH_2 , NO_2 , OCH_3 , $\text{N}(\text{CH}_3)_2$, A, or, R_1 and R_2 , taken together with the ring to which they are attached, form R_7 ;
 - R_3 and R_4 are different and are selected from the group consisting of H, $\text{C}(=\text{O})$, OH, M, or R_3 and R_4 , taken together with the ring to which they are attached, form R_8 ;
 - R_5 and R_6 are different and are selected from the group consisting of H or
- 10

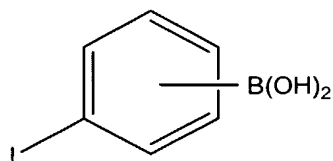


, wherein Q is H or M;

- A is OH, NH_3 , $\text{C}(=\text{O})$ or $\text{N}^+(\text{CH}_3)_2$;

- R_7 is  ;

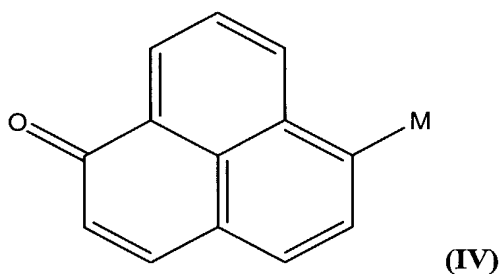
- R_8 is  ;
- 15



- M is ;
- L, when present, is an amino-containing linking moiety; and
- R₁ and R₂, and R₃ and R₄, are adjacent to each other on the rings on which they reside; and salts thereof; which reporter compound is sensitive to the presence of said compound or metabolite thereof, with an area of the body where said metabolites may be found, and detecting a photometric change in said reporter compound indicative of said metabolite.

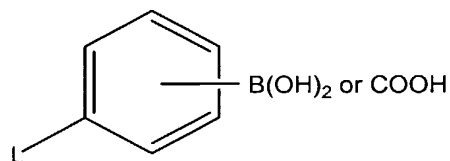
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11. A method of measuring a compound or metabolite thereof, comprising contacting a reporter compound of the following formula:



10

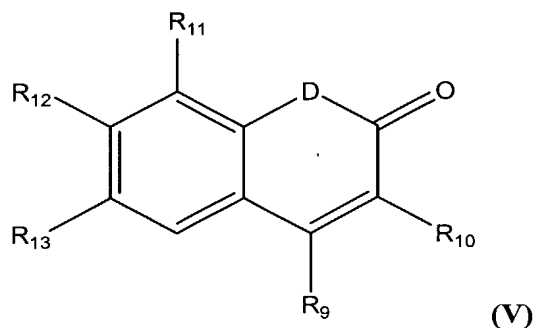
wherein



- M is ; and
- L, when present, is an amino-containing linking moiety; and salts thereof; which reporter compound is sensitive to the presence of said compound or metabolite thereof, with an area of the body where said metabolites may be found, and detecting a photometric change in said reporter compound indicative of said metabolite.

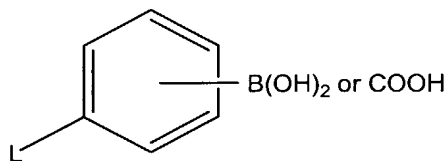
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12. A method of measuring a compound or metabolite thereof, comprising contacting a reporter compound of the following formula:



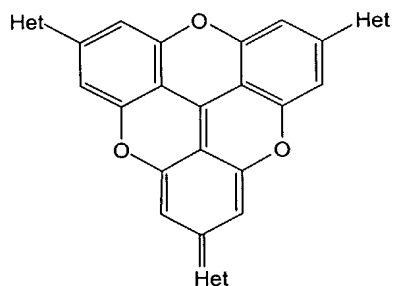
wherein

- 5
- D is a heteroatom (*e.g.*, O or N);
 - R₉ is H, OH, CH₃, CF₃, M, or an amino or substituted amino group;
 - R₁₀ is H, CH₃, or M;
 - R₁₁, R₁₂, and R₁₃ are individually H, OH, alkoxy, M, or an amino or substituted amino group;
- 10
- R₁₄, when present, is H or CH₃;



- 15
- M is ; and
 - at least one boronic acid moiety is present; and salts thereof, which reporter compound is sensitive to the presence of said compound or metabolite thereof, with an area of the body where said metabolites may be found, and detecting a photometric change in said reporter compound indicative of said metabolite.
13. The method of any one of claims 8 through 12, wherein said area of the body is skin.
14. The method of any one of claims 8 through 12, wherein said area of the body is the layer of the skin known as *stratum corneum*.

15. The method of any one of claims 8 through 12, wherein said area of the body is the layer of the skin known as *epidermis*.
16. The method of any one of claims 8 through 12, wherein said area of the body is the layer of the skin known as *dermis*.
- 5 17. The method of any one of claims 8 through 12, wherein said compound is glucose.
18. A chromophore of the following formula:



wherein Het represents a heteroatomic group, which groups may be identical or different.

- 10 19. The chromophore of claim 18, wherein heteroatomic group comprises N, O, or S.